

Gas Exploration Beyond the Shelf Break: An Oceanographic Challenge.

Thiem, O., Berntsen, J., Eldevik, T. and Alendal, G., 2006.

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Norway's second largest gas field, Ormen Lange, is located 140km west off Kristiansund at an unprecedented depth when it comes to exploration. It will be the first Norwegian project beyond the shelf break. Exploration and development of the field is thus a challenge. An important issue during the planning stage is to understand the current conditions and hydrography of the site. This is especially important regarding pipeline design, deployment and operations. A complicating factor for estimating design currents is the extreme roughness of the local topography. Submarine slides have produced escarpments and sea-mounts with height variations of up to 100m. The hydrography seems to be equally complex; in situ moorings have revealed strong variations in current speed and temperature close to the seabed.

A variety of numerical experiments have been and are being set up in order to recapture and if possible forecast the observed variability. This paper shows how the variability near the seabed is strongly influenced by the local topography and stratification. Realistic model studies therefore require high-resolution models for the topography connected to basin scale models. The models must be non-hydrostatic and the stratification realistic to enable realistic estimates of extreme events.

<https://www.hydro-international.com/content/article/gas-exploration-beyond-the-shelf-break-an-oceanographic-challenge>
